What is claimed is:

1. A method for controlling a physical system using a form of a model of the physical system, the method comprising:

applying an input to a first model and a second model of the physical system during a transition period from operating under the first model to operating under the second model, wherein the input is tapered during the transition period when applied to the first model and the second model; and

combining an output from the first model with an output from the second model during the transition period to control the physical system.

2. The method of claim 1 wherein a tapering function associated with the first model decreases a magnitude of the input with time during the transition period and a tapering function associated with the second model increases a magnitude of the input with time during the transition period.

3. The method of claim 2 wherein the tapering function associated with the first model is a compliment of the tapering function associated with the second model.

4. The method of claim 3 wherein a gain of the tapering function associated with the first model varies from 1.0 to 0.0 during the transition period and a gain of the tapering function associated with

the second model varies from 0.0 to 1.0 during the transition period.

5. The method of claim 4 wherein at any instance during the transition period a sum of the gain of the tapering function associated with the first model and the gain of the tapering function associated with the second model is less than or equal to one.

6. The method of claim 4 wherein at any instance during the transition period a sum of the gain of the tapering function associated with the first model and the gain of the tapering function associated with the second model is equal to one.

7. The method of claim 4 wherein each of the tapering functions comprises a cyclodial function.

8. The method of claim 1 wherein the model comprises an inverse model of the physical system.

9. The method of claim 1 wherein the model comprises a forward model of the physical system.

10. A computer readable medium including instructions readable by a computer, which when implemented, cause the computer to control a physical system, the instructions comprising:

applying an input to a first model and a second model of the physical system during a transition period from operating under the first model to operating under the second model, wherein the input is tapered during

the transition period when applied to the first model and the second model; and

combining an output from the first model with an output from the second model during the transition period to control the physical system.

11. The computer readable medium of claim 10 wherein a tapering function associated with the first model decreases a magnitude of the input with time during the transition period and a tapering function associated with the second model increases a magnitude of the input with time during the transition period.

12. The computer readable medium of claim 11 wherein the tapering function associated with the first model is a compliment of the tapering function associated with the second model.

13. The computer readable medium of claim 12 wherein a gain of the tapering function associated with the first model varies from 1.0 to 0.0 during the transition period and a gain of the tapering function associated with the second model varies from 0.0 to 1.0 during the transition period.

14. The computer readable medium of claim 13 wherein at any instance during the transition period a sum of the gain of the tapering function associated with the first model and the gain of the tapering function associated with the second model is less than or equal to one.

15. The computer readable medium of claim 13 wherein at any instance during the transition period a sum of the gain of the tapering function associated with the first model and the gain of the tapering function associated with the second model is equal to one.

16. The computer readable medium of claim 13 wherein each of the tapering functions comprises a cyclodial function.

17. The computer readable medium of claim 10 wherein the model comprises an inverse model of the physical system.

18. The computer readable medium of claim 10 wherein the model comprises a forward model of the physical system.

19. A system controller for controlling a physical system, the system controller comprising:

means for applying an input to a first model and a second model of the physical system during a transition period from operating under the first model to operating under the second model, wherein the input is tapered during the transition period when applied to the first model and the second model; and

means for combining an output from the first model with an output from the second model during the transition period to control the physical system.

20. The system controller of claim 19 wherein the means for applying includes: a tapering function associated with the first model to decrease a magnitude of the input with time during the transition period; and a tapering function associated with the second model to increase a magnitude of the input with time during the transition period.

21. The system controller of claim 20 wherein the tapering function associated with the first model is a compliment of the tapering function associated with the second model.

22. The system controller of claim 21 wherein a gain of the tapering function associated with the first model varies from 1.0 to 0.0 during the transition period and a gain of the tapering function associated with the second model varies from 0.0 to 1.0 during the transition period.

23. The system controller of claim 22 wherein at any instance during the transition period a sum of the gain of the tapering function associated with the first model and the gain of the tapering function associated with the second model is less than or equal to one.

24. The system controller of claim 22 wherein at any instance during the transition period a sum of the gain of the tapering function associated with the first model and the gain of the tapering function associated with the second model is equal to one.

25. The system controller of claim 22 wherein each of the tapering functions comprises a cyclodial function.

26. The system controller of claim 19 wherein the model comprises an inverse model of the physical system.

27. The system controller of claim 19 wherein the model comprises a forward model of the physical system.